

Table III. Summary of results

Study	Patients	Device and body placement	Intervention details	Compare or control	Outcome measures	Main findings
Bogachev et al. (11)	<i>n</i> = 32	NMES (Veinoplus®) applied to the posterior surface of the lower leg along calf muscles.	Frequency: 20–30 Hz Pulse width: Not stated Wave form: Not stated Treatment duration: 20 min Times per day: 1–10 days = × 3 11–20 days = × 2 21–30 days = × 1	NA	Circumference of the supramaleal shin segment with a tape measure Pain (VAS) QOL (CIVIQ)	Total or partial reduction of evening oedema was shown in 93.8% of limbs, the circumference of the lower leg diminished by 20.3 mm (<i>p</i> < 0.001), pain reduced and quality of life improved.
Non-randomized clinical trial	18 female 12 male					
Chronic venous oedema	45.2 years					
Ravikumar et al. (12)	<i>n</i> = 22	NMES (Revitive IX) to the nerves and muscles of the foot.	Intensity: 1–99 units, maximum current of 13 mA rms at 500 Ω resistance Pulse width: Not stated Wave form: 5 different waveform patterns Treatment duration: 30 min daily for 6 weeks Times per day: Once	Sham group	Oedema (Perometer) Quality of life	Limb volume increased in the sham group, but was prevented in the NMES group. NMES may prevent orthostatic limb oedema with NMES.
RCT	15 female 7 male					
Chronic venous disease	62 years					
Wou et al. (13)	<i>n</i> = 10	2 NMES devices (Geko and Revitive IX). The Geko was applied to the calf muscle pumps and the Revitive IX applied to nerves and muscles of the foot.	Geko: Frequency: 1 Hz Pulse width: 70–560 μs Wave form Treatment: Transcutaneous 4 hours duration Times per day: Once Revitive: Frequency: 20–50 Hz Pulse width: 4–9 seconds Wave form: 15 different waveform patterns Treatment duration: 30 min Times per day: Once	Grade 2 graduated compression stockings	Oedema (Perometer)	All devices well-tolerated and reduced leg swelling; however, stockings were the only significant reduction.
Non-randomized pilot clinical trial	4 female 6 male					
Leg swelling	29.9 years					
Man et al. (14)	<i>n</i> = 20	Standing with NMES (HEALTHFIT) applied to lower leg muscles.	Frequency: 45–125 Hz Pulse width: Mean = 80 Hz Wave form: 60–240 μs Rectangular waveform Treatment duration: 30 min Times per day: Once	30 min of standing without NMES	Foot and ankle volume (Plexiglas ankle volumeter)	Mean volume changes from pre- to post-test with NMES and without were significantly different.
Non-randomized clinical trial	14 male 6 female					
Healthy patients	28.9 years					
Man et al. (15)	<i>n</i> = 34	NMES or Sub motor ES (HEALTHFIT) applied to the lower leg muscles.	Frequency: Mean = 80 Hz Pulse width: 60–240 μs Wave form: Rectangular Treatment duration: 3 × 30 min Times per day: Once	Placebo group	Volumetric Displacement Figure-of-8 ankle girth Function (Hughston Clinic Subjective Rating Scale for Ankle Disorders)	There was no significant difference for volume or function. Ankle girth was significantly different from session 1 to 3, but this may be compromised. NMES is not effective in the early period after ankle sprain.
RCT	11 female 23 male					
Ankle sprain	30.2 years					
Devrimsel et al. (16)	<i>n</i> = 60	Cefar device for NMES on the flexor and extensor muscle groups of the hand.	Frequency: 30 Hz Pulse width: 300 ms Wave form: Symmetrical biphasic Treatment duration: 20 min Times per day: 5 times per week for 3 weeks	Whirlpool bath	Hand volumetric device Pain (VAS) ROM Fingertip-to-distal palmar crease distance, hand grip strength and pinch strength	Significantly statistical improvements were observed in all parameters in both groups, Hand oedema decreased post-treatment of NMES.
RCT	35 female 25 male					
Complex regional pain syndrome	39.53 years					
Faghri (17)	<i>n</i> = 8	NMES (Medtronic) applied to the forearm.	Frequency: 35 Hz Pulse width: Not stated Wave form: Not stated Treatment duration: 30 min Times per day: Once	Limb elevation	Volumetric Measurement (hand and arm) Lower and upper arm girth	NMES was more effective for reduction of hand oedema than limb elevation alone.
Non-randomized clinical trial	65 years					
Cerebrovascular accident						

RCT: randomized clinical trial; ES: electrical stimulation; NMES: neuromuscular electrical stimulation; VAS: visual analogue score; QOL: quality of life CIVIQ: Chronic Venous Insufficiency Quality of Life Questionnaire.